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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,828	04/14/2006	Robert Francis Ryan	M03V200	6770
20411 7590 03/03/2008 THE BOC GROUP, INC. 575 MOUNTAIN AVENUE MURRAY HILL, NJ 07974-2064				
EXAMINER CONLEY, SEAN EVERETT				
ART UNIT 1797		PAPER NUMBER		
MAIL DATE 03/03/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/575,828

**Applicant(s)**

RYAN ET AL.

**Examiner**

SEAN E. CONLEY

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2006 and 09 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/14/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/06)  
Paper No(s)/Mail Date 11/9/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 provides for the use of "the fumigant/sterilant according to claim 1, for fumigating and/or sterilizing soil or commodities", but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 17 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 18-19 are rejected for the same reasons stated above since they depend from and include all of the limitations of claim 17.

Claim 20 provides for the use of "the fumigant/sterilant according to claim 1, for confined space soil or commodity fumigation and/or sterilization", but, since the claim

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does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102/103***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3, 7-11 and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over O'Brien (U.S. Patent No. 6,001,383).

O'Brien et al. disclose cyanogen fumigants and methods of fumigation using the cyanogen fumigant (see col. 1, line 63 to col. 2, line 5). A particular fumigant disclosed by O'Brien et al. comprises a gas or solution of cyanogen which is mixed with gaseous carbon dioxide on site or in an industrial gas cylinder (see col. 2, lines 1-35; see col. 6, lines 64-67; see col. 7, lines 1-10). O'Brien et al. have discovered that the presence of increased levels of carbon dioxide enhance the toxicity of the cyanogen thus enabling a lower concentration of cyanogen to be used, without sacrificing the efficacy of the fumigation (see col. 5, lines 32-50; see col. 6, lines 4-8). Furthermore, O'Brien has recognized that the cyanogen is flammable and that the addition of carbon dioxide is useful in reducing the fire hazard of the cyanogen (see col. 4, lines 40-62; see col. 8, lines 40-48; see examples 2 and 45). Example 45 specifically discloses mixing small doses of cyanogen with carbon dioxide concentrations of 30% and 50%. Thus, with these concentrations of carbon dioxide and the reduction of the fire hazard by adding

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CO<sub>2</sub> disclosed by O'Brien, it is implicitly disclosed that the cyanogen/carbon dioxide mixture is below its flammability limit. In the event that sufficient specificity has not been shown with regards to the cyanogen/carbon dioxide mixture remaining below its flammability limit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the concentrations of the carbon dioxide and cyanogen in the mixture in order to prevent the fumigant mixture from igniting, exploding, or spontaneously combusting during a fumigation process.

O'Brien et al. further disclose that the cyanogen fumigant is used in a method of fumigating a commodity or structure wherein the commodity is grain, seed, meat, fruit vegetables, timber, plants, cut flowers, soil, or a silo (see col. 2, lines 1-32; see examples 2 and 45).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. as applied to claims 1 and 9 above, and further in view of Latif et al. (U.S. Patent No. 4,889,708).

O'Brien fails to explicitly disclose that the carbon dioxide is liquid carbon dioxide. Latif et al. disclose a fumigant system which employs a fumigant mixed with a liquefied diluent gas. The fumigant composition comprises gaseous phosphine as the fumigant and liquid carbon dioxide as a diluent. The mixture is stored in a pressurized container until it is ready for use in a fumigation process where it is released in a gaseous state. (see col. 1, lines 7-20; see col. 2, line 7 to col. 3, line 8). This reference has been relied upon to teach that it is well known to utilize liquid carbon dioxide as a carrier for a fumigant gas.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of O'Brien and replace the gaseous carbon dioxide carrier gas with liquid carbon dioxide in the fumigant composition as exemplified by Latif et al. in order to provide the fumigant composition in a pressurized cylinder which has been prepared at a factory as opposed to on-site.

8. Claims 5-6 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. as applied to claims 1 and 9 above.

O'Brien fails to specifically disclose the levels of CO<sub>2</sub> required to maintain the cyanogen mixture below its flammability limit. However, O'Brien does teach the use of carbon dioxide in air mixtures to reduce the fire hazard associated with cyanogen, and therefore, it would have been obvious and well within the purview of one of ordinary skill in the art to optimize the carbon dioxide and cyanogen concentrations in the fumigant mixture and choose a carbon dioxide concentration in the range of 80 to 99% and a cyanogen concentration in the range of 1 to 20% in order to prevent ignition, explosion, or spontaneous combustion of the fumigant mixture during a fumigation process.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sean E Conley/  
Primary Examiner, Art Unit 1797